AMENDMENT TO THE CLAIMS

1. (currently amended) A method of representing a serpentine track accessing format, the method comprising:

obtaining a plurality of head and physical track number pairs in the serpentine track accessing format; and

mapping each of the plurality of head and physical track number pairs to a corresponding unique virtual track number, wherein the virtual track numbers have a non-continuous monotonic order as the head and physical track number pairs are sequentially traversed in the serpentine track accessing format.

2-3. (canceled)

4. (currently amended) The method of claim 3-1, wherein the non-continuous monotonic order is a non-continuous monotonically increasing order.

5. (canceled)

6. (original) The method of claim 1, wherein the serpentine track accessing format is a track serpentine format.

7. (original) The method of claim 1, and further comprising storing virtual track numbers in a table such that the table is indexed by the virtual track numbers.

8. (original) The method of claim 7, and further comprising searching the table using virtual track numbers as the search parameter.

9. (original) A translation engine configured to implement the method of claim 1.

10. (original)A multi-head disc drive data storage system including the translation engine of claim 9, wherein mapping each of the plurality of head and physical track number pairs to corresponding unique virtual track numbers makes the multi-head drive a functional equivalent of a single head disc drive data storage system having the virtual track numbers.

11. (currently amended) A method of representing a serpentine track accessing format, the method comprising:

obtaining a plurality of head and physical track number pairs in the serpentine track accessing format; and

mapping each of the plurality of head and physical track number pairs to a corresponding unique virtual track number, ~~The method of claim 1, wherein mapping each of the plurality of head and physical track number pairs to the corresponding unique virtual track numbers further comprises~~ comprising:

selecting a modulo M ~~which is greater than or equal to the~~ as a function of a maximum number of tracks per physical zone ~~per head multiplied by a total number of heads~~;

within each physical zone, assigning each physical track an offset value N sequentially, wherein offset value N is less than or equal to M-1;

assigning each physical zone a unique value P which reflects its traversing sequence; and

for each physical track, combining its offset value N and the unique value P assigned to its corresponding physical zone to obtain the corresponding unique virtual track number K.

12. (original) The method of claim 11, wherein assigning each physical track the offset value N sequentially further comprises assigning each physical track the offset value N continuously starting from zero for a first sequential track of the corresponding zone.

13. (original) The method of claim 11, wherein the unique value P assigned to each physical zone is equal to a physical zone index value.

14. (original) The method of claim 11, wherein for each physical track, combining its offset value N and the unique value P assigned to its corresponding physical zone to obtain the corresponding unique virtual track number K further comprises allocating a first number of bits of the virtual track number K to represent the offset value N, and allocating a second number of bits of the virtual track number K to represent the unique value P assigned to its corresponding physical zone.

15. (currently amended) A data storage system comprising:

a plurality of recording surfaces, with each recording surface including a plurality of physical ~~of physical~~ data tracks;

a plurality of heads, with each of the plurality of heads positioned adjacent to one of the plurality of recording surfaces, thereby forming a plurality of head and physical track number pairs in a serpentine track accessing format; and

a translation engine configured to obtain the plurality of head and physical track number pairs in the serpentine track accessing format, and to map each of the plurality of head and physical track number pairs to a corresponding unique virtual track number by assigning the unique virtual track number in a manner which results in the virtual track numbers being in a non-continuous monotonic order as the head and physical track number pairs are sequentially traversed in the serpentine track accessing format.

16-17. (canceled)

18. (currently amended) The data storage system of claim 17, wherein the non-continuous monotonic order is a non-continuous monotonically increasing order.

19-23. (canceled)

24. (new) The method of claim 11, wherein selecting the modulo M further comprises selecting the modulo M such that it is greater than or equal to a maximum number of tracks per physical zone per head multiplied by a total number of heads.

25. (new) The data storage system of claim 15, wherein the translation engine is configured to assign the unique virtual track numbers by performing steps comprising:

selecting a modulo M as a function of a maximum number of tracks per physical zone;

within each physical zone, assigning each physical track an offset value N sequentially, wherein offset value N is less than or equal to M-1;

assigning each physical zone a unique value P which reflects its traversing sequence; and

for each physical track, combining its offset value N and the unique value P assigned to its corresponding physical zone to obtain the corresponding unique virtual track number K.

26. (new) The data storage system of claim 25, wherein the translation engine is configured to perform the step of selecting the modulo M by selecting the modulo M such that it is greater than or equal to a maximum number of tracks per physical zone per head multiplied by a total number of heads.